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ABSTRACT

This study compared the effects of four experimental treatments on levels of expectancy or aspiration of 80 disadvantaged and non-disadvantaged boys and girls. Levels of expectancy were more discrepant frcm previous performance in conditions perceived as chance regulated, and in those outcomes actually controlled by chance. More unusual shifts in expectancy, down after success, were made under chance conditions. Disadvantaged girls perceived themselves as most powerless in influencing their own reinforcements, whereas the disadvantaged boys had a less external or chance of orientation. (Author/DM)

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Disadvantaged and Nondisadvantaged Children's Expectancy in Skill and Chance Outcomes[1]

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Abstract

The present authors compared the effects of four experimental treatments on levels of expectancy or aspiration of 80 disadvantaged and nondisadvantaged boys and girls. The design orthogonally crossed two perceptions of the task conditions (skill versus chance), two task regulation conditions (skill versus chance), two socioeconomic levels, and sex. Levels of expectancy were more discrepant from previous performance in conditions perceived as chance regulated and in those outcomes actually controlled by chance. More unusual shifts in expectancy, down after success, were made under chance conditions. Disadvantaged girls perceived themselves as most powerless in influencing their own reinforcements while the disadvantaged boys had a less external or chance orientation.

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The importance of the probability of success or subjective expectancy of achievement in setting levels of ambition has been well documented (Siegel, 1957; Diggory & Morlock, 1964). Rotter (1966) has suggested that the individual's perception of his degree of control over performance outcomes should affect the pattern of his expectations. That is, for example, if a child believes that grades or teacher praise are contingent upon his own performance rather than random probability, his level of expectation, aspiration, and subsequent performance should be affected.

Several authors have attempted to determine the relative functions generated by chance versus skill perceptions. Phares (1957) found that subjects who, in general, perceived reinforcement as being externally controlled (chance) made more unusual shifts in expectancy statements - that is, up with failure, down with success. When half of the subjects were instructed that success in a matching task was a matter of chance rather than skill, levels of expectancies as to success were smaller than for the skill treatment. James (1957) obtained similar results. Subjects who received skill instructions evidenced more generalization of expectancy statements to a new situation than those given chance instructions for the same task. Lefcourt, Lewis, and Silverman (1968) classified college students as external or internal and tested them on Rotter's (1954) Level of Aspiration Board, giving chance or skill instructions. Internal subjects had higher level of aspiration discrepancy scores (average difference between previous performance and subsequent expectancy) than externals. Internals made more unusual shifts than externals under chance instructions.

It is apparent that in addition to subjects' perception of the skill-chance nature of a task, the actual task characteristics are critical determinants of expectancy levels and subsequent performance. James and Rotter (1958) and Rotter, Liverant and Crowne (1961) found, as would be expected, that 100 per cent reinforcement extinguished faster than 50 per cent under chance instructions; however, the opposite was true for groups perceiving the task as skill regulated. In the latter study, although two different tasks were used (card guessing for chance and a steel ball steadiness lift for skill), trials to extinction on these two measures were treated synonymously in their analyses. Blackman (1962) found the length of reinforcement sequences to influence expectancies and, concomitantly, resistance to extinction. The longest continuous sequences extinguished more quickly.

Atkinson's (1957) model of behavior in achievement situations has been followed by considerable research investigating relations among probability of success, value of success, achievement motivation, fear of failure and level of aspiration. For example, Teevan (Thomas & Teevan, 1964; Teevan & Fischer, 1966) has reported that subjects with high fear of failure show extremes in aspirations and attribute responsibility for failure to external sources. Burdick (1965) found differential value of success to influence a subject's distortion of the objective probability of success (chance conditions). Rotter (1966) suggests that many, if not most, learning situations of human beings in everyday life situations are perceived as skill controlled. However, some individuals perceive reinforcements in the majority of situations as being controlled by external forces such as fate, chance, and powerful others. For example, Battle and Rotter (1963) found lower class children in general to have higher external locus of control expectancy than middle class children.

Treatments were varied in the present study to approximate the perceptions theorized to exist as a basis for the locus of control construct (Rotter, 1966).

It has been demonstrated that a child's level of ambition also is related to his socioeconomic background. In one investigation, Turner (1962) reports high ambition of high school students to be associated with high parental education, small families, and stable families. Wylie and Hutchins (1967) obtained postive relationships between socioeconomic level and (1) self-estimated scholastic ability and achievements; (2) scholastic and career aspirations of junior and senior high school students. Persons in this culture, regardless of social class, generally aspire to higher achievement than their previous performance. Deutsch (1968) states, "...that most people of western culture, under the pervasive pressures toward 'self-improvement,' when first exposed to a level-of-aspiration situation give an initial level of aspiration which is above the previous performance score, and that under most conditions they tend to keep their level of aspiration higher than their previous performance [p. 454]."

The present authors compared expectancy setting in chance versus skill perception of chance versus skill tasks among culturally disadvantaged and nondisadvantaged children. An attempt was also made to relate these findings to occupational ambition. Unlike the studies cited (Phares, 1957; James, 1957; James & Rotter, 1958; Rotter, Liverant, & Crowne, 1961), the investigators varied both task perception and control while maintaining the same dependent measure. Additionally, SES and sex were controlled by assigning equal numbers of boys and girls and equal numbers of disadvantaged and nondisadvantaged children to each condition.

More unusual shifts and the gambler's fallacy (Phares, 1957; James; 1957; Blackman, 1962) generated by real and perceived unpredictability in chance tasks should contribute to variable expectancy scores. It was thus assumed that, in general, children should set levels of predicted performance more discrepant from previous performance in externally or chance <u>controlled</u> tasks as well as in tasks <u>perceived</u> to be chance controlled. However, regardless of the treatment condition, subjects should set initial expectancy levels as high or higher than their previous performance (Deutsch, 1968). Further, disadvantaged children should have a more exteranl orientation and they should anticiapte working at less prestigious occupations for a lesser salary than their middle class counterparts (Turner, 1962). It should be noted that the subjects in the present investigation are younger than those in the studies reviewed. As such, differences in career aspirations may be minimized.

Method

<u>Subjects</u>

The subjects were 3 second, 42 third, and 35 fourth grade children (40 males and 40 females) from a public school in a mining community in West Virginia. The second grade children had all been retained in that grade from the previous year. Of these subjects one-half were classified as disadvantaged and one-half were nondisadvantaged. Approximately one half

of the subjects selected from each classroom were in each socioeconomic group. The criteria for selection of these two groups involved one or more of the following: (a) parents receiving welfare payments; (b) student receiving free breakfast and lunch; (c) student receiving free vitamins and milk; and (d) teacher knowledge of home conditions. The subjects were assigned to one of the four treatments by reference to a table of random digits, with the restriction that randomization was recycled to maintain balanced treatment groups.

Design

The overall design consisted of four perception-reality treatment conditions crossed with two socioeconomic conditions which were controlled for sex, forming a 2x2x2x2 (Perception x Reality x Socioeconomic x Sex) completely crossed and balanced factorial format with five repeated trials. That is, the design is represented by a mixed model with four between factors and one within subject factor. The experimental treatments consisted of two factors: (a) the subject's perception of the task as chance or skill and (b) whether the task outcome was actually chance or skill controlled. Thus the four treatments are summarized: (a) Perceive Skill-Actually Skill; (b) Pereeive Skill-Actually Chance; (c) Perceive Chance-Actually Chance; and (d) Perceive Chance-Actually Skill.

Conditiona and Procedures

Following group administration of the Locus of Control Scale for Children (Bialer, 1961), described below, subjects were individually escorted to a small experimental room and seated beside the experimenter at a table for the experimental task. In general, the task required the subject to place pegs in a pegboard on the table after stating his level of expected accomplishment. He was instructed to put as many pegs as possible in the board in the time provided. Further, he was asked to use only that hand which he naturally used for writing.

At the completion of eachof the six performance trials, the number of pegs was counted and recorded. The experimenter stated the subject's achievement score (the number of pegs placed in the board) and requested the subject to estimate the number of pegs he believed he would be able to place in the board on the succeeding attempt.

Treatment 1: Perceive Skill-Actually Skill. The subject was given 20 seconds to place as many pegs into the board as possible in this condition. After each trial, the experimenter stated, "You got _____ pegs in that time. How many pegs do you think you will actually place into the board on this trial, in the same amount of time?"

Treatment 2: Perceive Skill-Actually Chance. The same instructions were given, but the experimenter made no mention of the amount of time for any trial. The number of seconds provided for each of the six trials was randomly varied from 10 to 30 ($\bar{X}$ = 20) by consulting a table of random numbers prior to the beginning of testing. Subjects did not appear to be aware of the differing time periods allowed; however, no awareness assessments were taken in this or other treatments.

Treatment 3: Perceive Chance-Actually Chance. Prior to each trial, the subject was instructed to draw a slip of paper from an open-top box containing numbers from 10 to 30. The number indicated the number of seconds that would be allotted to complete that trial. Before drawing, he was asked to set his level of aspiration or expectancy for the succeeding trial. Thus, the subject set his expectancy, realizing that the time provided would be chance determined.

Treatment 4: Perceive Chance-Actually Skill. The procedure for this condition coincides with that of Treatment 3 with the exception that the experimenter kept the amount of time constant at 20 seconds without informing the subject that he was doing so. That is, ostensibly the seconds were determined by the subject's drawing of a number before each trial, but time was, in fact, constant.

Following completion of the pegboard task, the subject responded to four questions: (a) "What job do you think you will do when you grow up?"; (b) "How much school will you have to attend in order to do this job?"' (c) "How much money per week will you make for your work?"; and (d) "Where will you work?"

The Internal-External Locus of Control Scale for Children (Bialer, 1961) consists of twenty-three "yes-no" items exemplified by, "Do you really believe a kid can be whatever he wants to be?" and "Can you do anything about what is going to happen tomorrow?" The items were read aloud while the subjects followed silently, prior to the experimental treatment.

Results

Level of aspiration has traditionally been defined experimentally as the discrepancy between performance and subsequent expectancy of future performance (Lewin, Dembo, Festinger, & Sears, 1944; Heathers, 1942; Irwin & Mintzer, 1942; Kausler & Trapp, 1958). Such scores were derived in the present investigation by subtracting the predicted score from previous performance, e.g., performance score for trial two minus predicted score for trial three, absolute value. These means and actual performance means for each cell are displayed in Table 1. An overall mixed analysis of variance incorporated two levels each of socioeconomic classification, sex, task perception, and actual task determination, across five replicated level of aspiration scores.

A primary assumption was that children should make larger performance to prediction shifts in chance controlled situations as well as in those perceived to be chance controlled. The effect due to chance versus skill perception was significant in the predicted direction ($F = 7.58$, $df = 1, 64$, $p < .01$) as was the chance-skill task nature main effect ($F = 6.02$, $df = 1, 64$, $p < .05$). All other sources were nonsignificant ($p > .05$), with the exception of the Sex x Perception x Trials interaction ($F = 3.11$, $df = 4, 256$, $p < .05$). In that interaction, boys' discrepancy scores between performance and subsequent expectancy increased over trials in the chance perception conditions while girls showed a slight decline.

Table 1

Mean Level of Aspiration Discrepancy Scores and Actual Performance Scores, Across Five Prediction Trials and Six Performance Trials

	Perceived → / Actually →	Skill / Skill	Skill / Chance	Chance / Skill	Chance / Chance
Nondisadvantaged Male	Performance	9.87	12.30	10.87	11.77
	Discrepancy	1.40	2.96	1.12	5.24
Nondisadvantaged Female	Performance	12.03	10.63	12.00	13.20
	Discrepancy	1.32	1.80	2.04	3.44
Disadvantaged Male	Performance	11.97	10.97	11.40	12.23
	Discrepancy	2.36	2.28	3.32	5.24
Disadvantaged Female	Performance	11.80	11.60	11.00	11.30
	Discrepancy	1.64	2.08	2.84	3.20

A second hypothesis invólving the number of unusual shifts in expectancy after success in chance and skill conditions was partially supported. A chi-square of these data indicated more shifts down following success in the chance condition (Perceive Chance-Actually Chance) than in the skill condition (Perceive Skill-Actually Skill) $\underline{X}^2 = 3.85$, $\underline{df} = 1$, $\underline{p} < .05$. However, the comparable chi-square for shifts up was nonsignificant, $\underline{p} > .05$. Success was defined as the subject meeting or exceeding his prediction on a given trial. Support was also obtained for the assumption that persons in this culture tend not to set their initial expectancy level below their first performance score. Of the 80 subjects in the experiment, 68 set their first expectancy level equal to or higher than their initial performance.

A posited difference in general expectancy between socioeconomic levels was partially supported. Although more disadvantaged than nondisadvantaged girls had a general external expectancy on the internal-external locus of control measure (median split), the opposite was true for boys, $\underline{X}^2 = 4.39$, $\underline{df} = 1$, $\underline{p} < .05$. Further, when disadvantaged children are considered separately, males display a more internal locus while the females are more external ($\underline{X}^2 = 8.74$, $\underline{df} = 1$, $\underline{p} < .01$). As noted earlier, socioeconomic differences were not obtained between treatments in the main design ($\underline{p} > .05$).

Adult occupation aspirations were classified according to the North-Hatt occupational prestige index (Slocum, 1966). Contrary to expectation, no differences between socioeconomic occupational aspirations were found on (1) the North-Hatt classification or (2) predicted income ($\underline{p} > .05$). However, these analyses were in the expected direction with disadvantaged children aspiring to less prestigious occupations and lower salaries. These 2 x 2 factorial analyses of variance revealed sex differences with females expecting to hold more prestigious jobs but earn less money than the males ($\underline{F} = 4.73$, $\underline{df} = 1, 66$, $\underline{p} < .05$, and $\underline{F} = 4.54$, $\underline{df} = 1, 62$, $\underline{p} < .05$ respectively.)

Product moment correlation matrices relating (a) mean level of aspiration discrepancy scores, (b) external control, (c) occupational aspiration, (d) salary aspiration, and (e) age, were computed separately for the following groups: nondisadvantaged subjects, disadvantaged subjects, males, females, skill perception, chance perception, skill control, chance control, and the overall sample. Significant correlations between age and salary and between occupational aspiration and salary were $\underline{r} = -0.31$, $\underline{df} = 38$, $\underline{p} < .05$ and $\underline{r} = 0.35$, $\underline{df} = 38$, $\underline{p} < .05$ respectively for the lower socioeconomic children. These findings indicate that older subjects expected lower salaries and that higher salaries were associated with high occupational ambitions. Significant negative correlations between age and external control were obtained for males, the skill control group, and the chance perception group ($\underline{r} = -0.33$, $\underline{df} = 38$, $\underline{p} < .05$, $\underline{r} = -0.39$, $\underline{df} = 38$, $\underline{p} < .05$, $\underline{r} = -0.46$, $\underline{df} = 38$, $\underline{p} < .01$ respectively). These correlations were interpreted as indicating a more internal control perception by older subjects.

The major findings may be summarized as follows. When disadvantaged and nondisadvantaged children set levels of expectancy, the deviation from their previous performance score is greater when the task requirements are limited by chance parameters than when the task outcome clearly depends upon the skill of the subject. This relationship appears to hold in the absence

of knowledge of the chance nature of the task, but appears to reflect the varying pattern of outcome scores generated by such a task. Moreover, not only the nature of the task, but also subjects' perception of the task character affects his prediction on the following occasion. Children also make more unusual shifts down or expect to perform more poorly following success in a chance controlled task perceived as such than in a skill task accurately perceived.

These findings support those of other authors who have used older subjects (Rotter, Liverant, & Crowne, 1961). The additional conditions of the present investigation allow more critical examination of contributing sources of variance. That is, differentiation of task perception and contingency control may be crucial to understanding school performance. For example, children who perceive teacher praise or selection of students as operating on a random schedule, rather than on a variable ratio or some other response controlled schedule, may tend to display more inconsistent behavior. Further, they may succumb to the "gambler's fallacy" of lowering their expectation of succeeding following success or positive selection when selection is indeed random.

Using controlled feedback, Bennion (1961) found that greater variability of scores produced results similar to the differences in expectancy obtained between chance and skill conditions in the present experiment. Variability in performance can be a salient contributor to altering expectancy patterns and may be interpreted as a determining factor in perception that the task is in fact skill or chance regulated. Accurate task perception can be communicated to most school children. In the absence of such communication, children may require repeated trials over an extended period of time to bring their expectancies in line with the actual task character. However, over similar problems or with increasing age children may learn to adjust expectancies more quickly as the learning-to-learn paradigm suggests (Di Vesta & Walls, 1969). Similar hypotheses should be tested in future research with incorporation of awareness assessments (Dulany, 1962).

Half of the children in the present investigation have been termed non-disadvantaged rather than advantaged. The school from which all children were drawn is in a "depressed" mining region. The nondisadvantaged children would largely be termed lower middle class. As such, the proposed socioeconomic difference in population may be minimal. However, the findings indicate a sex difference with disadvantaged girls perceiving themselves to be least powerful in influencing their own lives. This reflects the traditional role expectation of Appalachian women in low income families (Irelan, 1968). It is, however, encouraging to note that the disadvantaged boys exhibited a more internal locus of control. Ways in which inaccurate perceptions of powerlessness can be changed should be a topic of interest to researchers involved in development of compensatory education curricula. Aspiration in the laboratory and in the larger environment is determined by the nature of the task and the individual's perception of the control.

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